

REMARKS

This application has been reviewed further in light of the Office Action dated October 5, 2007. Claims 1-17, 51-58, and 72-101 remain pending in this application. Claims 1, 5, 51, 53, 72, 76, 77, 82, and 84 are in independent form. Claims 5-9 and 53 stand allowed. Favorable reconsideration is requested.

Claims 1-4, 13, 14, 17, 51, 52, 56, 72-85, 87, 91, 95 and 99 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,477,288 (*Sato*). Claims 10-12, 54, 55, 86, 89, 90, 93, 94, 96, 98, and 100 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sato*. Claims 15, 16, 57, 58, and 101 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sato* in view of U.S. Patent No. 5,986,783 (*Sharma et al.*).

According to Claim 1, **each node** comprises a **first switch** coupled through **plural first optical fibers** forming first communication paths **and plural second optical fibers** forming second communication paths, respectively, to a first, adjacent one of the nodes, and a **second switch** coupled through **plural other first optical fibers** forming other first communication paths **and plural other second optical fibers** forming other second communication paths, respectively, to a second, adjacent one of the nodes. In other words the first and second switch within a node are each coupled to at least four fibers for communication with an adjacent one of the nodes. *See*, for example Fig. 3 ^{1/}, fibers 70a,

^{1/} It should be understood, of course, that Fig. 3 is referred to herein for illustrative purposes only, and the claims should not be construed as being limited only to the embodiment depicted.

70b, 72a, and 72b coupled to switch 25 and fibers 80a, 80b, 82a, and 82b coupled to switch 27.

The Office Action states on pages 7 and 8 that:

Applicant's arguments filed 9/21/07 have been fully considered but they are not persuasive. Upon further review of Sato, the examiner has found that a different interpretation of Sato continues to anticipate the claimed invention as written. As noted in the office action, Sato teaches the plural first optical fibers that form the first communication path in that the first communication path is actually composed of a plurality of first fiber segment (e.g. the fibers between each node) that **when taken as a ring** anticipate the claimed plural first optical fibers forming first communication paths. The same holds true for the claimed plural second optical fibers forming the second communication paths. While the interview summary indicates that the proposed claim language distinguished the claimed invention from Sato, this new interpretation of the Sato reference continues to read on the claimed invention.

(Emphasis added.)

Additionally, page 3 of the Office Action states the following when equating the elements of Claim 1 to *Sato*:

. . . the first terminal (penultimate circle from top of switch 13 in Figure 5A) and the second terminal (uppermost circle from top of switch 13 in Figure 5A) of said first switch are coupled through first plural optical fibers forming first communication paths (reference number 5 in Figure 5A with fiber 5 forming a loop as in Figure 16 using a plurality of fiber segments that form the first communication paths) and second plural optical fibers forming second communication paths (reference numeral 7 in Figure 5A with fiber 7 forming a loop as in Figure 16 using a plurality of fiber segments that form the second communication paths), respectively, to a first, adjacent one of the nodes (e.g. nodes to the left of the node of Figure 5A) . . .

(Emphasis added.)

In the above section, the Office Action appears to take the position that the *single* network fiber element 5 of Figure 5A actually consists of *plural* fibers when taken as

a ring configuration in view of Figure 16. Likewise, the Office action appears to take the position that the *single* network fiber element 7 of Figure 5A actually consists of *plural* fibers when taken as a ring configuration in view of Figure 16. Applicants respectfully disagree with this characterization of *Sato* and maintain that the individual fiber elements 5-8 of Figure 5A are not plural. Applicants also maintain that *Sato* does not teach or suggest modifying them to be plural.

Figure 16 of *Sato* describes a “conventional SONET ring network . . . utiliz[ing] **four optical fibers** to transport data, in which two optical fibers 1a and 1b are designated as working, while the other two 2a and 2b are considered protection fibers,” (emphasis added) (*Sato* Col 1, lines 49-52). “The fibers 1 and 2 connect five SONET nodes, N1-N5,” (*Sato* Col 1, lines 53-54). Figure 16 shows the connections **between nodes** in the optical network but not the connections within a particular node or the connections from switches within a node. At best, Figure 16 shows a conventional SONET ring network wherein nodes are connected through a working fiber pair (fibers 1a and 1b) and a protection fiber pair (fibers 2a and 2b), using a total of **four fibers**.

Figure 5 shows the connections within a particular node in one embodiment of *Sato*’s system. Figure 5, like Figure 16, “**employs a four fiber system**: working optical fibers 5 and 6 and the protection optical fibers 7 and 8,” (emphasis added) (*Sato* Col 14, lines 11-15). Hence, the fibers 5, 6, 7, and 8 of Figure 5 are analogous to the fibers 1a, 1b, 2a, and 2b of Figure 16, respectively, inasmuch as they are used to form a working fiber pair and a protection fiber pair for communicating between nodes.

As referenced above, the Office Action attempts to equate the claimed first plural optical fibers forming first communication paths with “reference numeral 5 in Figure 5A with fiber 5 forming a loop as in Figure 16 using a plurality of fiber segments that form the first communication paths,” (Office Action page 3). Further, on page 7 the Office Action states “Sato teaches the plural first optical fibers that form the first communication path in that the first communication path is actually composed of a plurality of first fiber segment (e.g. the fibers between each node) that **when taken as a ring** anticipate the claimed plural first optical fibers forming first communication paths,” (emphasis added). The Office Action appears to suggest that when the network of Figure 5 is placed in a ring configuration then the four *single* fibers in Figure 5 will be made plural (e.g. fibers 5-8 will be made plural). However, there is simply no discussion in *Sato* to suggest modifying the *single* fibers of Figure 5A to be plural. Furthermore, the reasoning in the Office Action is believed to be incorrect given that Figure 5A is already in an optical ring network configuration and mirrors the four fiber working/protection scheme described in Figure 16. *See, Sato* Col 14, lines 11-16, “An optical line switching system (i.e., node N) 40 is, as shown in FIGS. 5A and 5B, for example, can be utilized in a optical ring network that employs a four fiber system: working optical fibers 5 and 6 and the protection optical fibers 7 and 8.” (emphasis added).

Thus, contrary to the Office Action’s assertions, Applicants maintain that *Sato* only has two *single* fibers extending from each switch in Figure 5A, whether taken alone or in view of Fig. 16. In Claim 1, on the other hand, each switch is coupled to plural first optical fibers forming first communication paths *and* plural second optical fibers

forming second communication paths, wherein each first communication path is a working path and each second communication path is a protect path.

Nothing in *Sato* is understood to teach or suggest those features in the context of the communication network set forth in Claim 1. Therefore, that claim is believed to be clearly patentable over *Sato*, and thus withdrawal of the Section 102(e) rejection of Claim 1 is requested.

Independent Claim 51 is a node claim having features similar in many relevant respects to those of Claim 1 emphasized above, and also is believed to be clearly patentable over *Sato* for the same reasons as those set forth above with respect to Claim 1.

Independent Claim 72, as amended, recites, in part, that plural first optical fibers form at least two working paths and plural second optical fibers form at least two protect paths and that at least one of the switches of at least one of the nodes is coupled to at least one of the switches of at least one other of the nodes through the plural first optical fibers and the plural second optical fibers.

As pointed out above, in Fig. 5A of *Sato*, switch 13 is connected to a component external to the optical line switching system 40 through only a single working fiber 5 and only a single protection fiber 7, and the other switch 14 is connected to a component external to the optical line switching system 40 through only a single working fiber 5 and only a single protection fiber 7. Nothing has been found, or pointed out in *Sato* that would teach or suggest the above-recited features of Claim 72. Accordingly, that claim is believed to be clearly patentable over *Sato*.

Independent Claim 76 recites, in part, that plural first optical fibers form at least two working paths and plural second optical fibers form at least two protect paths and that at least one of the switches is coupled to the plural first optical fibers and the plural

second optical fibers. Independent Claim 77 recites, in part, that the plural first optical fibers form at least two working paths and the plural second optical fibers form at least two protect paths and that at least one of the switches of the at least one node is coupled to at least one of the switches of at least one other of the nodes through the plural first optical fibers and the plural second optical fibers .

Again, as pointed out above, each switch 13 and 14 depicted in Fig. 5A of *Sato* is connected to only a single working fiber and only a single protect fiber. Nothing has been found, or pointed out in *Sato* that would teach or suggest the foregoing features of Claims 76 and 77. Therefore, Claims 76 and 77 are believed to be clearly patentable over *Sato* as well.

Independent Claims 82 and 84 recite that at least one of the switches is coupled to plural first optical fibers forming plural working paths and plural second optical fibers forming plural protect paths. Those claims also are believed to be clearly patentable over *Sato* because that reference is not seen to teach or suggest those features in the context of the invention claimed in those respective claims.

A review of *Sharma et al.* has failed to reveal anything which is understood to remedy the above-described deficiencies of *Sato* against the independent claims herein. Accordingly, those claims are believed to be patentable over both of those references.

The other pending claims in this application are each dependent from one or another of the independent claims discussed above and also are believed to be patentable over the art relied on in the Office Action for the same reasons as are those independent claims. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

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